UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,612	04/14/2004	Hiroshi Kajiwara	00862.023540.	5087

5514 7590 10/16/2008

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER	
ROBERTS, JESSICA M	

ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
10/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/823,612	KAJIWARA, HIROSHI	
	Examiner	Art Unit	
	JESSICA ROBERTS	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,6-10 and 12-23* is/are pending in the application.

4a) Of the above claim(s) *3 and 12-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2,4,6-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgment of Amendments

The amendment filed on 07/18/2008 overcomes the following objection(s)/rejection(s):

The rejection of claims 10-11 under 35 U.S.C § 101 for being directed to non-statutory subject matter has been withdrawn in view of Applicant's amendment.

Response to Arguments

As to applicant's argument regarding that nothing in Eiji would teach or suggest that the number of bit-planes *not* to be decoded is determined before decoding.
The examiner respectfully disagrees. Eiji teaches that in order to decode each image frame by the step which sets up the decode processing time of the request at the time of the demanded decode, and the decode processing time of the set up request The decode processing time of the above mentioned request by the step assigned to each coding batch and the assigned decode processing time The step which carries out the entropy decode of the separated above mentioned entropy coded data per bit plane for every coding batch, and asks for the quantized wavelet transform multiplier [0023]. Further disclosed, in order that the bit rate control section may encode each image frame, the bit rate, i.e., the target bit rate, of the request set up by the bit rate setting out section By assigning a target bit rate to each coding batch It takes into consideration whether the coded data to the bit plane of which level of each coding batch is used for generation of a coded bit stream. After controlling the number of a bit plane which gibes entropy code modulation for every coding batch or finishing encoding all bit planes,

processing which takes out the required amount of data sequentially from the thing corresponding to the top bit plane is performed [0033]. Therefore, it is clear to the examiner that Eiji teaches the request is made to specify and limit the number of frames at the decoder, which would illustrate selecting a desired number of frames, thus those not desired to be decoded would not be selected, reading upon the claimed limitation.

As to applicants argument regarding Van Der Schaar has failed to reveal anything which, in Applicant's opinion, would remedy the decencies of the art above.

The examiner respectfully disagrees. Van Der Schaar teaches wherein selecting a candidate for each subband from the table, in accordance with the information acquired in the decoding process time information acquisition step (Van Der Schaar discloses that the number of bit-planes to be discarded may be determined once for each image sequence, and remain constant throughout that sequence.[0035]. Alternatively, the decoder can omit step 308, and discard any bit-planes that are not desired to be decoded by the user, [0041]. Van Der Schaar discloses that the number of bit planes to be discarded are determined for each image sequence and the decoder can discard any bit-planes that are not desired for decoding by the user, it is clear to the examiner that Van Der Schaar discloses to select a candidate from the subbands that are not be decoded, which reads upon the claimed limitation. Note: since Van Der Schaar discloses to discard any bit-planes, it is clear to the examiner that all bit-planes are considered to be candidates.), and setting lower bitplanes or lower sub-bitplanes, the number of which is indicated by the selected candidate, as the bitplanes or sub-bitplanes which are not be decoded (Van Der Schaar discloses where alternatively, the

decoder can omit step 308, and discard any bit-planes that are not desired to be decoded by the user [0041]. Since Van Der Schaar discloses the decoder can discard any undesired bit-plane by the user, it is clear to the examiner that discarding any bit-plane would encompass a lower bit plane or lower sub-bitplane, which reads upon the claimed limitation).

Applicant's arguments with respect to claims 1-2, 4, and 6-10 have been considered but are moot in view of the new ground(s) of rejection.

Status of Claims

Claims 1-4, 6-10 and 12-23 are pending in this application. Claims **3 and 12-23** have been **withdrawn** from consideration. Claims **5** and **11** have been **canceled**. Claims **1, 9,** and **10** have been amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-2, 4 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eiji et al., JP-2001-112004 in view of Van Der Schaar et al., US-2004/0001635 and further in view of Sato et al., US-2003/0081847 A1.

Regarding **claim 1,** Eiji teaches A moving image decoding method of decoding encoded moving image data, which is generated by decomposing each frame of moving image data into a plurality of subbands, and encoding coefficients of the subbands from upper to lower bits for respective bitplanes or sub-bitplanes for each predetermined unit, comprising: a decoding process time information acquisition step of acquiring information used to examine a difference between a time assigned to a decoding process of encoded moving image data for the predetermined unit ([0023] and [0032]), and a time required for an actual decoding process ([0056] and [0057]); a non-decoding bitplane determination step of determining bitplanes or sub-bitplanes which are not to be decoded on the basis of the information acquired in the decoding process time information acquisition step (Eiji teaches that in order to decode each image frame by the step which sets up the decode processing time of the request at the time of the demanded decode, and the decode processing time of the set up request The decode processing time of the above mentioned request by the step assigned to each coding batch and the assigned decode processing time The step which carries out the entropy decode of the separated above mentioned entropy coded data per bit plane for every coding batch, and asks for the quantized wavelet transform multiplier [0023]. Further disclosed, in order that the bit rate control section may encode each image frame, the

bit rate, i.e., the target bit rate, of the request set up by the bit rate setting out section By assigning a target bit rate to each coding batch It takes into consideration whether the coded data to the bit plane of which level of each coding batch is used for generation of a coded bit stream. After controlling the number of a bit plane which gibes entropy code modulation for every coding batch or finishing encoding all bit planes, processing which takes out the required amount of data sequentially from the thing corresponding to the top bit plane is performed [0033]. Therefore, it is clear to the examiner that Eiji teaches the request is made to specify and limit the number of frames at the decoder, which reads upon the claimed limitation); a bitplane decoding step of reclaiming the coefficients of the subbands from encoded data of bitplanes or sub-bitplanes other than the bitplanes or sub-bitplanes determined in the non-decoding bitplane determination step (Eiji teaches the step which carries out the entropy decode of the separated above-mentioned entropy coded data per bit plane for every coding batch, and asks for the quantized wavelet transform multiplier, the step which performs reverse quantization processing to the wavelet transform multiplier by which quantization was carried out, It has the step which performs wavelet inverse transformation to the wavelet transform multiplier by which reverse quantization was carried out, and reproduces an image frame [0023]. Therefore, it is clear to the examiner that Eiji is reclaiming coefficients from encoded data of bitstreams, since Eiji teaches decoding the separated entropy coded data to produce an image, which reads on the claimed limitation); and a subband composition step of generating frame data by compositing the coefficients of the plurality of subbands obtained in the bitplane decoding step (dynamic image generating

section, [0042] and fig. 3:208); wherein the non-decoding bit-plane determination step includes steps of: managing a table which stores, for each subband, candidates each of which a candidate of the number of lower bitplanes or lower sub-bitplanes which are not to be decoded, selecting a candidate for each subband from the table, in accordance with the information acquired in the decoding process time information acquisition step, and setting lower bitplanes or lower sub-bitplanes, the number of which is indicated by the selected candidate, as the bitplanes or sub-bitplanes which are not be decoded.

However, Van Der Schaar teaches wherein selecting a candidate for each subband from the table, in accordance with the information acquired in the decoding process time information acquisition step (Van Der Schaar discloses that the number of bit-planes to be discarded may be determined once for each image sequence, and remain constant throughout that sequence.[0035]. Alternatively, the decoder can omit step 308, and discard any bit-planes that are not desired to be decoded by the user, [0041]. Van Der Schaar discloses that the number of bit planes to be discarded are determined for each image sequence and the decoder can discard any bit-planes that are not desired for decoding by the user, it is clear to the examiner that Van Der Schaar discloses to select a candidate from the sub bands that are not be decoded, which reads upon the claimed limitation. Note: since Van Der Schaar discloses to discard any bit-planes, it is clear to the examiner that all bit-planes are considered to be candidates.), and setting lower bitplanes or lower sub-bitplanes, the number of which is indicated by the selected candidate, as the bitplanes or sub-bitplanes which are not be decoded (Van Der Schaar discloses where alternatively, the decoder can omit step 308,

and discard any bit-planes that are not desired to be decoded by the user [0041]. Since Van Der Schaar discloses the decoder can discard any undesired bit-plane by the user, it is clear to the examiner that discarding any bit-plane would encompass a lower bit plane or lower sub-bitplane, which reads upon the claimed limitation).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Eiji with Van Der Schaars' teaching of dynamically adjusting the decoded bit-planes to provide a more efficient encoding and decoding of bit-planes while upholding image quality [0006].

The Eiji (modified by Van Der Schaar) does not explicitly teach managing a table which stores, for each subband, candidates each of which a candidate of the number of lower bitplanes or lower sub-bitplanes which are not to be decoded.

However, Sato teaches managing a table which stores, for each subband, candidates each of which a candidate of the number of lower bitplanes or lower sub-bitplanes which are not to be decoded (Sato discloses in the example of FIG. 8, tables (sets) 0 through 7 are provided, and each table indicates the number of bit planes to be discarded in each sub band counting from the4 LSB plane, [0056]. Additionally, the table data such as the illustrated in FIG.8 are able to limit the degradation of the image quality of the resulting image upon its decoding with respect to the required compression rate. This is done by determining the bit plane to be discarded so that the ones which are least likely to influence the image quality upon decoding the image will be selected in due order [0078]. Since Sato discloses the table is used to limit the

degradation of image quality by discarding bitplanes, it is clear to the examiner that by determining the bitplanes to be discarded would necessitate managing the table).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Sato with Eiji (modified by Van Der Schaar) for improving image quality.

Regarding **claim 2** Eiji (modified by Van Der Schaar and Sato) as a whole teaches everything as claimed above, see claim 1. In addition, Eiji teaches The method according to claim 1, wherein the decoding process time information acquisition step includes a step of acquiring a decoding process time required for the decoding process of the encoded moving image data ([0057] and [0063]), and the non-decoding bitplane determination step includes a step of determining the bitplanes or sub-bitplanes which are not to be decoded on the basis of the decoding process time acquired in the decoding process time information acquisition step (Eiji teaches that in order to decode each image frame by the step which sets up the decode processing time of the request at the time of the demanded decode, and the decode processing time of the set up request The decode processing time of the above mentioned request by the step assigned to each coding batch and the assigned decode processing time The step which carries out the entropy decode of the separated above mentioned entropy coded data per bit plane for every coding batch, and asks for the quantized wavelet transform multiplier [0023]. Further disclosed, in order that the bit rate control section may encode each image frame, the bit rate, i.e., the target bit rate, of the request set up by the bit rate setting out section By assigning a target bit rate to each coding batch It takes into

consideration whether the coded data to the bit plane of which level of each coding batch is used for generation of a coded bit stream. After controlling the number of a bit plane which gives entropy code modulation for every coding batch or finishing encoding all bit planes, processing which takes out the required amount of data sequentially from the thing corresponding to the top bit plane is performed [0033]. Therefore, it is clear to the examiner that Eiji teaches the request is made to specify and limit the number of frames at the decoder, which reads upon the claimed limitation).

Regarding **claim 4,** Eiji (modified by Van Der Schaar and Sato) as a whole teaches everything as claimed above, see claim 1. Eiji is silent in regards to The method according to claim 1, wherein the non-decoding bitplane determination step includes a step of managing a parameter indicating image quality, adjusting the parameter on the basis of the information acquired in the decoding process time information acquisition step, and determining the bitplanes or sub-bitplanes which are not to be decoded of each subband on the basis of the parameter.

However, Van Der Schaar teaches The method according to claim 1, wherein the non-decoding bitplane determination step includes a step of managing a parameter indicating image quality ([0050], [0051] and [0052]), adjusting the parameter on the basis of the information acquired in the decoding process time information acquisition step (Van Der Schaar teaches before deciding to discard bit-planes to reduce decoding complexity, the decoder takes into account the effect of discarding the bit planes on image quality [0018]. Further, the quality of the FGS decoded images is determined at the decoded side (where the original image is not present), and subsequently, the

decoder uses the computed quality to determine how many bit planes can be discarded to reduce the complexity without lowering image quality below a desired quality level [0020]. Since Van Der Schaar discloses discarding bit planes based on the decoder complexity that takes in account image quality for a desired quality level and the quality is computed determines how many bit planes to discard, it is clear to the examiner that the quality can be adjusted based on how many bit planes are to be discarded, which reads on the claimed limitation.) and determining the bitplanes or sub-bitplanes which are not to be decoded of each subband on the basis of the parameter (Van Der Schaar teaches in some embodiments, the number of bit-planes decoded is dynamically adjusted within a single video sequence, to increase during a sequence of frames when there is higher detail, and decrease during a sequence of frames when there is lower detail [0028], [0046] and fig. 2:206, 207, and fig. 4:460), which reads on the claimed limitation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Eiji (modified by Sato) with Van Der Schaars' teaching of dynamically adjusting the decoded bit-planes to provide a more efficient encoding and decoding of bit-planes while upholding image quality [0006].

Regarding **claim 6** Eiji (modified by Van Der Schaar and Sato) as a whole teaches everything as claimed above, see claim 2. In addition, Eiji teaches wherein the non-decoding bitplane determination step includes a step of calculating a difference between a time assigned to a decoding process of the encoded moving image data of the predetermined unit ([0023] and [0032]), and the decoding process time acquired in

the decoding process time information acquisition step ([0056] and [0057]), and determining the bitplanes or sub-bitplanes which are not to be decoded of each subband on the basis of an accumulated value of the calculated differences (Eiji teaches that in order to decode each image frame by the step which sets up the decode processing time of the request at the time of the demanded decode, and the decode processing time of the set up request The decode processing time of the above mentioned request by the step assigned to each coding batch and the assigned decode processing time The step which carries out the entropy decode of the separated above mentioned entropy coded data per bit plane for every coding batch, and asks for the quantized wavelet transform multiplier [0023]. Further disclosed, in order that the bit rate control section may encode each image frame, the bit rate, i.e., the target bit rate, of the request set up by the bit rate setting out section By assigning a target bit rate to each coding batch It takes into consideration whether the coded data to the bit plane of which level of each coding batch is used for generation of a coded bit stream. After controlling the number of a bit plane which gibes entropy code modulation for every coding batch or finishing encoding all bit planes, processing which takes out the required amount of data sequentially from the thing corresponding to the top bit plane is performed [0033]. Therefore, it is clear to the examiner that Eiji teaches the request is made to specify and limit the number of frames at the decoder, which reads upon the claimed limitation).

Regarding **claim 7**, Eiji (modified by Van Der Schaar and Sato) as a whole teaches everything as claimed above, see claim 1. In addition, Eiji teaches The method according to claim 1, wherein subband decomposition for generating the encoded

moving image data is attained by two-dimensional discrete wavelet transformation ([0010]), and the subband composition step includes a step of compositing the frame data using two-dimensional inverse discrete wavelet transformation (wavelet reverse converter, [0049] and fig 4).

Regarding **claim 8,** Eiji (modified by Van Der Schaar and Sato) as a whole teaches everything as claimed above, see claim 1. In addition, Eiji teaches the method according to claim 1, wherein the predetermined unit is a frame or a block obtained by segmenting a frame into a plurality of blocks ([0003] and [0042]).

Regarding **claim 9**, see rejection and analysis of claim 1, except this is a claim to an apparatus with the same limitations as claim 1.

Regarding **claim 10**, the rejection and analysis made in claim 1 also apply here. Eiji (modified by Van Der Schaar and Sato) as a whole teaches a processor-based system. Hence a program that can execute an information processing apparatus, for executing the necessary steps corresponding to the decoding method of claim 1 would have been inherent.

Further regarding **claim 10**, Eiji (modified Van Der Schaar and Sato) as a whole teaches everything as claimed above, see claim 1. Eiji is silent in regards to a computer-readable medium, storing a program, in executable form, for causing an information processing apparatus, to perform a moving image decoding method according to claim 1.

However, Van Der Schaar teaches computer-readable medium, storing a program, in executable form, for causing an information processing apparatus, to perform a moving image decoding method according to claim 1 ([0059]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Eiji (modified by Sato) with Van Der Schaar to provide an increased efficiency of video encoding and decoding while using existing computer hardware.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA ROBERTS whose telephone number is (571)270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621
/Jessica Roberts/
Examiner, Art Unit 2621